



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Studies in North American Peronosporales—III. New or noteworthy species*

GUY WEST WILSON

Albugo Trianthemae sp. nov.

Soris hypophyllis, rotundis vel irregularibus, rarius confluentibus, immersis, prominentibusque, subflavidis, 1–10 mm. latis, conidiophoris cylindraceis, circa $10 \times 60 \mu$; conidiis subflavidis, breviter cylindraceis, circa $8-10 \mu \times 8-10 \mu$, terminalibus majoribus, circa $9-11 \mu \times 12-14 \mu$, membrana hyalina, ad medium annulo cincta; oosporis in foliis hospitis, globosis, 60–80 μ diametro, episporis brunneis, regulariter vel irregulariter reticulatis, areolis circa 4 μ latis.

Sori hypophyllous, rounded or irregular in outline, rarely confluent, rather deep-seated, prominent, yellowish, 1–10 mm.; conidiophores cylindric, about $10 \times 60 \mu$; conidia short-cylindric, $8-10 \mu \times 8-10 \mu$, the terminal larger, $9-11 \mu \times 12-14 \mu$, membrane hyaline, with an equatorial thickening, contents light yellow, oöspores produced in the leaves of the host with the conidia, globular, 60–80 μ , averaging about 70 μ , episore dark brown, rather closely and shallowly reticulate, areolae regular or irregular, about 4 μ .

Type in herb. Wilson, and duplicates of the same collection in herb. Underwood and the herbarium of the New York Botanical Garden. Collected by E. O. Wooton near Las Cruces, New Mexico, on *Trianthema Portulacastrum* L.

This species stands between *Albugo occidentalis* and *A. platen-sis*, being distinguished from the former by its larger conidia, which are lighter in color and dissimilar in size, and by its larger and darker oöspore, which is less regularly and more deeply reticulate; and from the latter by its cylindric conidia with the membrane similarly colored throughout, and by its larger and less deeply reticulate oöspore. The conidia are also quite similar to those of *A. Tragopogonis* but the oöspores are not tuberculate. The host suggests an affinity with *A. Portulacae*, but the annulate, dissimilar conidia and the absence of the tubercles in the areolae of the oöspore preclude such a relationship.

* Presented before Section G, A. A. A. S., at Chicago, Dec. 31, 1907, as "New or noteworthy Peronosporales."

Albugo Froelichiae sp. nov.

Albugo Cladothricis G. W. Wilson, Science II. 27: 207. 1908.
(Hyponym).

Sori hypophyllis vel in caulibus, superficialibus prominentibusque, albis vel subflavidis, subrotundis vel irregularibus, 1–3 mm. latis; conidiophoris subfusiformibus, elongatis, $12\text{--}18\mu \times 70\text{--}85\mu$; conidiis subflavidis, breviter ellipticis, terminalibus minoribus, globosis, $10\text{--}18\mu \times 12\text{--}20\mu$, membrana subflavida, ad medium annulo cincta; oosporis in foliis hospitis, brunneis, globosis, $45\text{--}80\mu$; episporis irregulariter vel regulariter reticulatis, areolis circa 7μ latis.

Sori hypophyllous or caulicolous, prominent, superficial, white or light yellowish, rounded or irregular in outline, 1–3 mm.; conidiophores long, somewhat fusiform, $12\text{--}18\mu \times 70\text{--}85\mu$; conidia uniformly light yellow throughout, short-elliptic, $10\text{--}16\mu \times 12\text{--}18\mu$, the terminal smaller, globose, the membrane with an equatorial thickening; oöspores produced in the leaves of the host, globose, $45\text{--}80\mu$, averaging 70μ ; epispore dark brown, rather opaque, coarsely and irregularly, or even regularly reticulate, areolae about 7μ .

Type in herb. Wilson and duplicate in the herbarium of the New York Botanical Garden, collected by W. H. Long, at Denton, Texas, on *Froelichia gracilis* Moq.

ON AMARANTHACEAE:

Cladothrix lanuginosa (Moq.) Nutt., Kansas, *Hitchcock* 431; New Mexico, *Wootton*; Mexico, *Berlandier*.

Froelichia campestris Small, Texas, * *Long* [Fungi Columb. 2407, "on *F. floridiana* (Moq.) Nutt."].

Froelichia gracilis Moq., Texas, * *Long* (type).

DISTRIBUTION: Kansas to Mexico.

The present species is very closely related to *A. Bliti* and *A. platensis*, but is distinguishable from the former by its yellowish sori and its yellow conidia, while it is easily separated from the latter by its conidia, which are brighter yellow, and never show the dark ring of that species. The conidia also separate it from the preceding species, to which it is closely related. The conidiophores are unique within the genus for their fusiform outline. The oöspores are very similar to those of *A. Bliti* but are larger in size.

PHYTOPHTHORA THALICTRI Wilson & Davis

Material of this species collected by Dr. Davis later in the season than the type collection indicated that the species is rather well distributed over southeastern Wisconsin. Although a careful search was made in New York in the early summer and in Indiana in the late summer, the species was not found in either locality. Dr. Davis observed the germination of the conidia, which behave in the typical manner for the genus.

PERONOSPORA CYPARISSIAE de Bary

This species is reported by T. A. Williams from South Dakota on *Euphorbia glyptosperma* Engelm. and *E. maculata* L.* An examination of this material shows the species in question to be *Peronospora Euphorbiae* Fuckel, the only species so far detected on North American Euphorbiaceae. The two fungi in question infest widely separated sections of the old genus *Euphorbia*.

PERONOSPORA RUMICIS Corda

The species has been recorded from North America on *Polygonum aviculare* L., *P. dumetorum* L., and *P. scandens* L. European mycologists recognize two species of *Peronospora* on Polygonaceae, *P. Rumicis* Corda on *Rumex* spp. and *P. Polygoni* Thümen on *Polygonum* spp. The two fungi are separated by differences of both conidia and conidiophores. *P. Rumicis* has conidiophores 3–6 times branched, with very short ultimate branchlets (2–4 μ long) and broadly ellipsoid conidia (26–33 $\mu \times$ 16–23 μ), while *P. Polygoni* has conidiophores more lax, 5–7 times branched, the ultimate branchlets long (6–12 μ) and often curved, and elongate conidia (30–40 $\mu \times$ 15–20 μ). The latter species is rather widely distributed in the northern United States, while the former, so far as my own observations go, has not been substantiated by authentic material from our region, nor do any of the recorded hosts indicate its presence in North America.

PERONOSPORA ARBORESCENS (Berk.) de Bary

In his report upon a collection of western Fungi Hume† records *Peronospora Corydalis* de Bary on *Argemone platyceras*

* Bull. Torrey Club 19 : 82. 1891.

† Proc. Davenport Acad. Sci. 7 : 254. 1899.

Coulter from Colorado. The close relationship between this and the usually recognized hosts of *P. Corydalis* gave the determination an air of probability which might not have been questioned were it not for the fact that another species, *P. arborescens*, is known in Europe and Asia on various species of *Papaver*. A careful comparison of the material in question with authentic European material of both the species in question shows that the American material belongs to *P. arborescens*, a species not heretofore recorded for North America.

PERONOSPORA FLOERKEAE Kellerman

This species has so far been recorded only from central Ohio and central Indiana. About the same time Dr. Kellerman collected the type material Mr. H. S. Jackson of the Delaware Experiment Station collected it in the vicinity of Newark, Delaware, and Mr. Holway collected it on the Wisconsin side of the Mississippi opposite some Minnesota point. From these new records it appears that the fungus and host are coextensive in range.

PERONOSPORA NICOTIANAE Speg.

This species was originally described by Spegazzini from Buenos Aires on *Nicotiana longiflora** and later recorded by him on various other species of the same genus from this general region. From Buenos Aires there has been introduced into California, Texas and northern Mexico *Nicotiana glauca*, upon which in 1885 Dr. Farlow collected a *Peronospora* in California. This material was determined and distributed as *P. Hyoscyami* de Bary and records of its occurrence published in this country and copied abroad.† The European species of *Hyoscyamus* appear to harbor two species of *Peronospora*, *P. Hyoscyami* and *P. dubia*, the first of which bears a superficial resemblance to our species, while the second would never be confused with it. Both, however, belong to Berlese's section *Intermediae*, while our species belongs to the *Divaricatae*. Evidently, then, the European and American species are distinct. A comparison of our material with the de-

* Rev. Argent. Hist. Nat. 1: 36. 1 F 1891.

† Bot. Gaz. 10: 246. 1885. Gardeners' Chron. II. 9: 211. 1891.

scription of Spegazzini's species shows a close conformity thereto and leaves no doubt as to their identity, although no South American material is at hand for comparison. Judging from the origin of the host, it is not improbable that both host and fungus were introduced into the Southwest at the same time, although this is not one of the species recorded by Spegazzini as a host of *Peronospora Nicotianae*.

Inasmuch as the description of the species is rather inaccessible it is not unfitting to append a brief characterization:

Hypophyllous, forming brownish discolorations on the leaves; conidiophores erect, $250-500\ \mu \times 10-12\ \mu$, 6 or 7 times dichotomously branched, ultimate branchlets $15-18\ \mu \times 2-3\ \mu$, divaricate, acute; conidia ellipsoid or ovoid, $18-20\ \mu \times 9-11\ \mu$, very light violet; oögones globose, angled, hyaline, $80-100\ \mu$; oöspores $50-80\ \mu$, globose; epispore subopaque, closely reticulate, the areolae slightly elongate.

NEW YORK BOTANICAL GARDEN.